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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Christopher Uhlik

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EXAMINER

AHMED, SALMAN

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,165

Applicant(s)

UHLIK ET AL.

Examiner

Salman Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/31/2006(RCE).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-9 and 11-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-9 and 11-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1, 2, 6-9 and 11-24 are pending

Claims 3-5 and 10 are cancelled by the applicant.

Claims 1, 2, 6-9 and 11-24 are rejected.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 6, 7, 11, 12, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah et al. (US PAT 6577644), hereinafter referred to as Chuah in

view of Ho et al. (US PAT PUB 2002/0116501), hereinafter referred to as Ho, in view of Akhtar et al. (US PAT 6769000), hereinafter referred to as Akhtar.

In regards to claims 1, 11 and 14 Chuah teaches of a data networking protocol (column 3 lines 1-2, PPP is used as the link layer between the MN and the V-PDSN) comprising: one or more control commands (column 3 line 3, link-layer messages) employed by a respective network element to establish and manage one or two simultaneous wireless communication session (figure 4, multiple PPP links between Peer A and Peer B) of a single end user terminal of a data network.

In regards to claims 1, 11 and 14 Chuah does not explicitly teach one or more mobility management attribute-value pair(s) (AVP), employed by the network element to define one or more parameters of the accompanying control command and to facilitate exchange of mobility information in the data network

In regards to claims 1, 11 and 14, Ho teaches (page 5 section 0075) AVP being used to encode control message types to exchange of mobility information.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chuah's system/method by incorporating the Ho's teachings of sending AVP via control command and to facilitate exchange of mobility information. The motivation is that (as suggested by Chuah, column 1 lines 27-28) one needs to enhance PPP to provide quality of service (QoS) features. Further motivation is that (as suggested by Ho, page 5, section 0075) Control messages 48 (see FIG. 2) are used in the establishment maintenance, and tearing down of service tunnels, such as service tunnels 30-32. To maximize extensibility while still permitting interoperability,

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a uniform method for encoding control Message Types and bodies is used throughout L2TP. This encoding is called Attribute Value pair (AVP). An Attribute Value pair is defined as the variable length concatenation of unique attribute (represented by an integer) and a value containing the actual value identified by the attribute.

In regards to claims 1, 6, 7, 12, and 13 Chuah in view of Ho, teach of using attribute-value pair for mobility management as described above.

In regards to claims 1 Chuah in view of Ho does not explicitly teach facilitating secure mobility of wireless communication sessions. In regards to claims 6, 7, 12 and 13 Chuah in view of Ho does not explicitly teach authentication AVP during hand-off. In regards to claims 12 and 13 Chuah, in view of Ho does not explicitly teach mobility information comprises at least a portion of a communication session identifier that follows a communication session as it traverses through mobile communication link handoffs, the communication session identifier at least in part to implement mobility security features and communication session identifier is used to authenticate a mobile communication link handoff.

In regards to claims 1, 6, 7, 12 and 13 Akhtar in the same field of endeavor teaches that IPM-L2-Address AVP (column 84 lines 15-20), carries the L2-Address of IPM Client connection. The AVP carries both Address and Data. The types of Addresses include, among others, 802.3 Address (0), 802.11 Address (1), IMSI (2), and MIN (3). Akhtar further teaches IPM-SMM-MN-Key AVP (column 84 lines 59-61) carries the shared secret key between Serving Mobility Manager and Mobile Node. This key is only valid for the session. In regards to claim 6 and 7 Akhtar teaches (column 83 lines

5-7) that Integrity-Check-Value AVP is used for hop-by-hop message authentication and integrity.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chuah in view of Ho's system/method to incorporate Akhtar's teaching of deterministic element attribute-value pair (COOKIE AVP), random element attribute-value pair (K_n AVP) and authentication AVP. The motivation is that (as suggested by Ho, page 5, section 0075) in L2TP protocol, AVP gives an advantage to maximize extensibility while still permitting interoperability, a uniform method for encoding message types and bodies used throughout L2TP. As such, necessary network parameters for session identification or authentication can be encoded in AVP for extensibility while still permitting interoperability.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah in view of Ho, in view of Akhtar, in view of Chuah et al. (US PAT 6917600), hereinafter referred to as Chuah2.

In regards to claim 2, Chuah, in view of Ho, in view of Akhtar, teach of AVP being used in control command and to facilitate exchange of mobility information as described in the rejection of claim 1 above.

In regards to claim 2, Chuah, in view of Ho, in view of Akhtar do not explicitly teach the mobility management Attribute-value pairs include an attribute value pair denoting whether an incoming call request is a new call or a handoff

In regards to claim 2 Chuah2 in the same field of endeavor teaches (column 12 lines 60-67 and column 13 lines 1-2) the steps of combining hand-off control messages (CCRQ, CCRP, and CCCN) with the tunnel configuration (establishment) control messages (SCCRQ, SCCRP, and SCCCN) and are, respectively, concurrently transmitted between LACs. So the messages can either be purely SCCRQ having a tunnel configuration (establishment) control part or SCCRQ with CCRQ having a hand-off part as well.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify to modify Chuah in view of Ho in view of Akhtar's system/method by incorporating the method of sending establishment or handoff AVP via control command and to facilitate exchange of mobility information as taught by Chuah2. The motivation is that (as suggested by Ho, page 5, section 0075) Control messages 48 (see FIG. 2) are used in the establishment maintenance, and tearing down of service tunnels, such as service tunnels 30-32. To maximize extensibility while still permitting interoperability, a uniform method for encoding control Message Types and bodies is used throughout L2TP. This encoding is called Attribute Value pair (AVP). An Attribute Value pair is defined as the variable length concatenation of unique attribute (represented by an integer) and a value containing the actual value identified by the attribute.

3. Claims 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah (US PAT 6917600) in view of Akhtar et al. (US PAT 6769000), hereinafter referred to as Akhtar.

In regards to claims 15, 16, 17, 18, 19, 20, 21 and 22 Chuah teaches one or more control commands employed by a respective network element to establish and manage a wireless communication session in a data network (column 2 line 43, three new hand-off control messages, column 2 lines 10-11). One or more mobility management attribute-value pair(s) (AVP) employed by the network element to define one or more parameters of the accompanying control command and to facilitate exchange of mobility information in the data network, wherein the mobility management attribute-value pair(s) include an attribute-value pair (column 8 lines 4-11, additional Attribute Value Pairs (AVP) are defined for use in the L2TP control messages, hence, becoming mL2TP control messages. These additional AVPs are for supporting the multi-hop features and call transfer features).

In regards to claims 15, 16, 17, 18, 19, 20, 21 and 22 Chuah does not explicitly teach a deterministic element attribute-value pair (COOKIE AVP) or random element attribute-value pair (K_n AVP).

In regards to claims 15, 16, 17, 18, 19, 20, 21 and 22 Akhtar in the same field of endeavor teaches that IPM-L2-Address AVP (column 84 lines 15-20), carries the L2-Address of IPM Client connection. The AVP carries both Address and Data. The types of Addresses include, among others, 802.3 Address (0), 802.11 Address (1), IMSI (2), and MIN (3). Akhtar further teaches IPM-SMM-MN-Key AVP (column 84 lines 59-61)

carries the shared secret key between Serving Mobility Manager and Mobile Node. This key is only valid for the session. In regards to claim 6 and 7 Akhtar teaches (column 83 lines 5-7) that Integrity-Check-Value AVP is used for hop-by-hop message authentication and integrity.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chuah's system/method to incorporate Akhtar's teaching of deterministic element attribute-value pair (COOKIE AVP), random element attribute-value pair (K_n AVP) and authentication AVP. The motivation is that in L2TP protocol, AVP gives an advantage to maximize extensibility while still permitting interoperability, a uniform method for encoding message types and bodies used throughout L2TP. As such, necessary network parameters for session identification or authentication can be encoded in AVP for extensibility while still permitting interoperability.

In regards to claims 19, 23 and 24 Chuah teaches (column 12 lines 60-67 and column 13 lines 1-2) the steps of combining hand-off control messages (CCRQ, CCRP, and CCCN) with the tunnel configuration (establishment) control messages (SCCRQ, SCCRP, and SCCCN) and are, respectively, concurrently transmitted between LACs. So the messages can either be purely SCCRQ having a tunnel configuration (establishment) control part or SCCRQ with CCRQ having a hand-off part as well.

In regards to claim 20 Chuah teaches a machine accessible storage medium comprising a plurality of executable instructions which, when executed by an accessing machine, incorporate into a communication stack of the accessing machine at least one or more mobility (column 20 lines 26-34, FIG. 16, a high-level block diagram of a

representative NAS. NAS is a stored-program-control based processor architecture and includes processor, memory for storing program instructions and data, e.g., connection tables, etc., and communications interface(s) for coupling to one or more communication facilities as represented by a path).

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah in view of Ho, in view of Akhtar, and in view of Tummala et al. (US PAT 6915345), hereinafter referred to as Tummala.

In regards to claims 8 and 9 Chuah in view of Ho, in view of Akhtar teach of using AVP to do authentication during network hops.

In regards to claims 8 and 9 Chuah in view of Ho, in view of Akhtar do not specifically teach about certificate AVP and validation from a third party certification agency or authority.

Tummala in the same field of endeavor teaches (column 14 lines 33-38) that the encryption can be made using a shared secret or public keys, in the same manner as the Key AVPs returned by the AAAH in the Diameter Mobile IP Extensions when setting up the data security. If using PKI, the broker must be able to interface with a Certificate Authority (CA) or have those keys in storage.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chuah's system/method by incorporating Tummala's teaching of using security certificate in conjunction with certification authority. The motivation is that using security AVPs with security certificate in conjunction with

certification authority or agency will enhance network security and prevent security breach.

Response to Arguments

5. Applicant's arguments see pages 7-12 of the Remarks section, filed 03/06/2006, with respect to the rejection of claims 1, 2, 6-9, and 11-24 have been fully considered but they are not persuasive. Examiner respectfully disagrees with the applicant's argument "A link is not a session. Thus, multiple links cannot be equated to multiple simultaneous wireless communication sessions". The claim language is broad and in view of the broadest reasonable interpretation of this language, links can be thought of as sessions. Thus in figure 4, multiple PPP links between Peer A and Peer B can be thought of multiple sessions.

Applicant argues Chuah only ever discloses establishing a single communication session. See column 3, line 3. Chuah does not teach or disclose one or more control commands employed by a respective network element to establish and manage simultaneous wireless communication sessions of a single end-user terminal in a data network, as recited in claim 1. Thus, Chuah fails to disclose at least one limitation of claims 1 and 11. However, examiner respectfully disagrees with this assertion. The claim language is broad and in view of the broadest reasonable interpretation of this language, Chuah teaches as in figure 4, multiple PPP links between Peer A and Peer B.

Applicant argues Ho fails to cure the deficiencies of Chuah. Therefore, Applicant respectfully submits claims 1 and 11 are not obvious in view of Chuah and Ho. Claim 14

depends from claim 1 and distinguishes for at least the same reasons as set forth above. However, examiner respectfully disagrees with this assertion for the reasons cited above.

Applicant argues Chuah 2 fails to cure the deficiencies of Chuah and Ho. Therefore, Applicant submits claim 2 is not obvious in view of Chuah, Ho, and Chuah 2. However, examiner respectfully disagrees with this assertion for the reasons cited above.

Applicant argues Akhtar fails to cure the deficiencies of Chuah and Ho. Therefore, Applicant submits that claims 6, 7, 12 and 13 are not obvious in view of Chuah, Ho and Akhtar. However, examiner respectfully disagrees with this assertion for the reasons cited above.

Applicant argues Akhtar does not teach or disclose an attribute-value pair for each of a deterministic element and a random element of a communication session identifier, as claimed by Applicant. Therefore, Applicant respectfully submits that claims 15 and 20 are not obvious in view of Chuah2 and Akhtar. However, examiner respectfully disagrees with this assertion. The claim language is broad and in view of the broadest reasonable interpretation of this language, Chuah 2 in view of Akhtar teach a deterministic element attribute-value pair (IPM-SMM-MN-Key AVP, column 84 lines 59-61) or random element attribute-value pair (column 83 lines 5-7, that Integrity-check-value AVP).

Applicant argues claims 16-19 depend from claim 15. Claims 2 1-24 depend from claim 20. Given that dependent claims necessarily include the limitations of the claims

from which they depend, Applicant respectfully submits that claims 16-19 and 21-24 are not obvious in view of Chuah 2 and Akhtar. However, examiner respectfully disagrees with this assertion for the reasons cited above.

Applicant argues Tummala fails to cure the deficiencies of Chuah. Therefore, Applicant submits that claims 8 and 9 are not obvious in view of Chuah and Tummala. However, examiner respectfully disagrees with this assertion for the reasons cited above.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salman Ahmed whose telephone number is (571)272-8307. The examiner can normally be reached on 8:30 am - 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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04/14/2006



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